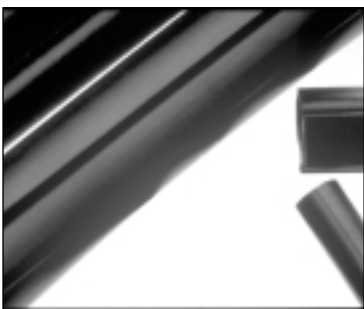


## SPHERON® SO-1A



SPHERON® SO-1A is one of the carbon blacks from CABOT's "A" grade family.

### Description

The surface appearance of extruded automotive profiles and window channels is very important today. Class "A" automotive surface applications demand a very low level of particles that could cause visible surface imperfections leading to rejects or 'scrap'. In response to that market requirement, a family of carbon blacks appropriately identified by the suffix "A", was developed by Cabot to address carbon black related extruded surface imperfections.

All "A" grades are free from inorganic salts and have a very low metallic particle content. The "A" carbon black series are produced via a special process resulting in a very low amount of impurities often referred to in the past as "grit". The benefits of the reduced impurities can be directly measured via a new test developed by Cabot known as the "MDP" test (Macro Defect Predictor). MDP is a 120 Mesh sieve residue test that is more sensitive and less destructive than the traditional ASTM grit test. The MDP test better reflects the performance of the "A" grades in class "A" extruded surface applications.

Furthermore, some members of the "A" grade family have a unique morphology, which considerably improves the speed of dispersion and ease of mixing compared to well known standard carbon grades like the ASTM N500, N600 and N700 series. The cleanliness and morphology features together drastically reduce the extruded surface defects normally associated with carbon black.

The morphological properties are similar to ASTM N539, but SPHERON SO-1A has the cleanliness features particularly important for the extruded market as discussed above.

### Applications

Main applications of SPHERON SO-1A are in industrial rubber products, particular those produced by extrusion like extruded profiles, weather strips and hoses. There are also applications in single-ply roofing, seals and moldings.





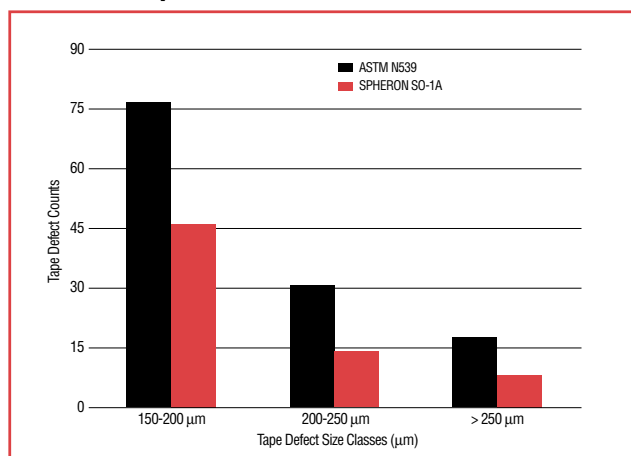
SPHERON SO-1A has similar morphological properties as ASTM N539, but contains less +120 Mesh size impurities.

This means that SPHERON SO-1A will exhibit the same rubber reinforcement, microwave receptivity and compound processing properties as ASTM N539.

However, SPHERON SO-1A will demonstrate a reduced number of visible imperfections on extruded "A" class rubber surfaces. This performance feature is shown in the comparison below against ASTM N539 in a 70 Shore EPDM test formulation (100 phr EPDM, 142 phr carbon black, 80 phr oil).

Carbon Black Grade	SPHERON SO-1A	ASTM N539
Carbon Black Loading, (phr)	142	142
<b>Mooney Viscosity @ 100° C</b>		
ML (1+4), (MU)	66	67
<b>Hardness</b>		
Shore A, (3 sec.)	70	69
<b>Tensile</b>		
Tensile Strength, (MPa)	13.9	13.7
Elongation @ Break, (%)	360	352
50% Modulus, (MPa)	2.0	2.1
100% Modulus (MPa)	4.6	4.5
300% Modulus (MPa)	12.4	12.5
<b>Tape Dispersion Rating</b> (265 cm <sup>2</sup> of extruded tape surface)		
Defect count size distribution:		
100-150 µm	303	388
150-200 µm	47	78
200-250 µm	14	31
>250 µm	8	19

### Extruded Tape Defect Counts



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